

CLAIMS

1. A *Bacillus* strain having a chromosome with the following  
5 modifications:
  - a) a mutation of a *spoIII*E gene which blocks transfer of the  
prespore chromosome,
  - b) a mutation which prevents loss of SpoOJ function from  
blocking sporulation, together with
  - 10 c) a first reporter gene having a promoter which is dependent on  
 $\sigma^F$  factor and placed at a location where impaired SpoOJ function leads to  
increased trapping and hence to increased expression in the prespore,  
and/or
  - d) a second reporter gene having a promoter which is  
15 dependent on  $\sigma^F$  factor and placed at a location where impaired SpoOJ  
function leads to reduced trapping and hence to reduced expression in the  
prespore.
2. A *Bacillus* strain as claimed in claim 1, wherein b) is a *soj*  
mutation.
- 20 3. A *Bacillus* strain as claimed in claim 1 or claim 2, wherein  
each of the first reporter gene c) and the second reporter gene d) is fused  
to a  $\sigma^F$ -dependent factor *gpr* promoter.
4. A *Bacillus* strain as claimed in any one of claims 1 to 3,  
wherein each of the first reporter gene c) and the second reporter gene d)  
25 expresses a different detectable enzyme.
5. A method of determining whether an agent inhibits SpoOJ  
function in *Bacillus* species, which method comprises inducing the *Bacillus*  
strain of any one of claims 1 to 4 to divide asymmetrically, as during  
sporulation, in the presence of the agent, and observing expression of the  
30 first and/or the second reporter gene.

6. A method as claimed in claim 5, wherein expression of the first and second reporter genes is observed by monitoring the levels of their expression products.
7. A method as claimed in claim 6, wherein the first and second  
5 reporter genes are expressed as enzymes whose activities are observed by fluorimetry or spectrophotometry.
8. A method as claimed in any one of claims 5 to 7, wherein the *Bacillus* strain is induced to sporulate and is contacted, just prior to asymmetric cell division with the agent.
- 10 9. A method as claimed in any one of claims 5 to 8, performed as a screening test for putative antimicrobial agents.
10. A method which comprises inducing the *Bacillus* strain of any one of claims 1 to 4 to sporulate in the presence of an agent, observing expression of the first and/or second reporter gene and thereby  
15 determining that the agent inhibits SpoOJ function in the *Bacillus* species, and using the agent as an antibiotic to kill or inhibit the growth of bacteria.